Complete Summary

TITLE

Venous thromboembolism (VTE): percent of patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given the day of or day after hospital admission or surgery end date for surgeries that start the day of or the day after hospital admission.

SOURCE(S)

Specifications manual for national hospital inpatient quality measures, version 3.0b. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2009 Oct. various p.

Measure Domain

PRIMARY MEASURE DOMAIN

Process

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the Measure Validity page.

SECONDARY MEASURE DOMAIN

Does not apply to this measure

Brief Abstract

DESCRIPTION

This measure* is used to assess the percent of patients who received venous thromboembolism (VTE)Â prophylaxis or have documentation why no VTE prophylaxis was given the day of or day after hospital admission or surgery end date for surgeries that start the day of or the day after hospital admission.

*This is a Joint Commission only measure.

RATIONALE

Hospitalized patients at high-risk forÂ venous thromboembolism (VTE) may develop an asymptomatic deep vein thrombosis (DVT), and die from pulmonary embolism (PE) even before the diagnosis is suspected.Â Therefore, the best

approach is for every patient to be evaluated for primary prophylaxis since preventing DVT is essential to reducing morbidity and mortality associated with PE.Â There is good evidence that appropriately used thromboprophylaxis has a desirable risk/benefit ratio and is cost-effective. Thromboprophylaxis provides an opportunity to improve patient outcomes and reduce hospital costs.Â Complications from prophylactic anticoagulation, especially bleeding, have not been supported by the results from many metanalyses and randomized clinical trials.Â Uniform uses of electronic alerts or local thromboprophylaxis guidelines are associated with improvements in both prophylaxis provision and patients' outcomes.

PRIMARY CLINICAL COMPONENT

Venous thromboembolism (VTE); prophylaxis

DENOMINATOR DESCRIPTION

All patients (see the related "Denominator Inclusions/Exclusions" field in the Complete Summary)

NUMERATOR DESCRIPTION

Patients who receivedÂ venous thromboembolism (VTE) prophylaxis or have documentation why no VTE prophylaxis was given:

- The day of or the day after hospital admission
- The day of or the day after surgery end date for surgeries that start the day of or the day after hospital admission

Evidence Supporting the Measure

EVIDENCE SUPPORTING THE CRITERION OF QUALITY

- A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence
- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

NATIONAL GUIDELINE CLEARINGHOUSE LINK

- Prevention of venous thromboembolism. American College of Chest Physicians evidence-based clinical practice guidelines (8th edition).

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Use of this measure to improve performance
Variation in quality for the performance measured

EVIDENCE SUPPORTING NEED FOR THE MEASURE

Caprini JA, Arcelus JI. State-of-the-art venous thromboembolism prophylaxis. Scope Phlebol Lymphol2001 Mar;1:228-40.

Geerts WH, Bergqvist D, Pineo GF, Heit JA, Samama CM, Lassen MR, Colwell CW. Prevention of venous thromboembolism: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition). Chest2008 Jun;133(6 Suppl):381S-453S. [728 references] PubMed

Geerts WH, Pineo GF, Heit JA, Bergqvist D, Lassen MR, Colwell CW, Ray JG. Prevention of venous thromboembolism: the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. Chest2004 Sep;126(3 Suppl):338S-400S. [794 references] PubMed

Kucher N, Koo S, Quiroz R, Cooper JM, Paterno MD, Soukonnikov B, Goldhaber SZ. Electronic alerts to prevent venous thromboembolism among hospitalized patients. N Engl J Med2005 Mar 10;352(10):969-77. PubMed

Michota FA. Venous thromboembolism prophylaxis in medical patients. Curr Opin Cardiol2004 Nov;19(6):570-4. [36 references] PubMed

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

Accreditation
Collaborative inter-organizational quality improvement
Internal quality improvement

Application of Measure in its Current Use

CARE SETTING

Hospitals

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Measure is not provider specific

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

TARGET POPULATION AGE

Age greater than or equal to 18 years

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Venous thromboembolism (VTE)Â is a frequent cause of largely preventable illness and death in hospitalized patients.Â Most patients who are admitted have one or more risk factors for VTE, and one study found that only 42% of inpatients received prophylaxis in the 30-day period preceding the diagnosis of deep vein thrombosis (DVT).Â Hospitalized medical patients have an approximately eight-fold higher risk of VTE compared to non-hospitalized individuals.

EVIDENCE FOR INCIDENCE/PREVALENCE

Goldhaber SZ, Tapson VF, DVT FREE Steering Committee. A prospective registry of 5,451 patients with ultrasound-confirmed deep vein thrombosis. Am J Cardiol2004 Jan 15;93(2):259-62. PubMed

Heit JA, Silverstein MD, Mohr DN, Petterson TM, O'Fallon WM, Melton LJ 3rd. Risk factors for deep vein thrombosis and pulmonary embolism: a population-based case-control study. Arch Intern Med2000 Mar 27;160(6):809-15. PubMed

ASSOCIATION WITH VULNERABLE POPULATIONS

Prophylaxis selection differs among inpatients because there seems to be no universal acceptance of the evidence in guidelines or consensus statements thatÂ venous thromboembolism (VTE) prophylaxis is suitable or appropriate for all clinical situations, especially recommendations related to medical patients.Â Patients at teaching hospitals versus non-teaching hospitals and non-surgical patients are much less likely to receive prophylaxis compared to surgical patients as well as the frail elderly.Â Gillies and colleagues identified three groups of surgical patients less likely to receive prophylaxis: moderate-risk patients, emergency admissions and conservatively treated patients.Â In a study by Goldhaber, 48% of patients had received no prophylaxis prior to developing VTE, 110 were admitted to medical services (general medicine and medical oncology) and 73 were admitted to surgical services that included general, thoracic, and cardiac surgery, orthopedics, gynecology, obstetrics, surgical gastroenterology and renal transplant. In a recent survey of 106 oncologists, 80% reported that they did not routinely prescribe prophylaxis for patients undergoing active treatment for cancer.

EVIDENCE FOR ASSOCIATION WITH VULNERABLE POPULATIONS

Gillies TE, Ruckley CV, Nixon SJ. Still missing the boat with fatal pulmonary embolism. Br J Surg1996 Oct;83(10):1394-5. PubMed

Goldhaber SZ, Tapson VF, DVT FREE Steering Committee. A prospective registry of 5,451 patients with ultrasound-confirmed deep vein thrombosis. Am J Cardiol2004 Jan 15;93(2):259-62. PubMed

Kirwan CC, Nath E, Byrne GJ, McCollum CN. Prophylaxis for venous thromboembolism during treatment for cancer: questionnaire survey. BMJ2003 Sep 13;327(7415):597-8. PubMed

Tooher R, Middleton P, Pham C, Fitridge R, Rowe S, Babidge W, Maddern G. A systematic review of strategies to improve prophylaxis for venous thromboembolism in hospitals. Ann Surg2005 Mar;241(3):397-415. [45 references] PubMed

Wittkowsky AK. Effective anticoagulation therapy: defining the gap between clinical studies and clinical practice. Am J Manag Care2004 Oct;10(10 Suppl):S297-306; discussion S312. [48 references] PubMed

BURDEN OF ILLNESS

About two-thirds of all venous thromboembolism (VTE) events are related to hospitalization and even though the risk of VTE in medical and surgical patients can be reduced with timely anticoagulation, prophylaxis in hospitalized patients is underused. Preventing deep vein thrombosis (DVT) is crucial to reducing morbidity and mortality associated with pulmonary embolism (PE), yet many patients do not receive adequate prophylaxis.

EVIDENCE FOR BURDEN OF ILLNESS

Heit JA, Cohen AT, Anderson FA Jr, et al. Estimated annual number of incident and recurrent, non-fatal and fatal venous thromboembolism (VTE) events in the US. Blood2005;106:Abstract 910.

UTILIZATION

Hospitalized patients at high-risk for venous thromboembolism (VTE) (that includes pulmonary embolism [PE] and deep vein thrombosis [DVT]) may develop an asymptomatic deep vein thrombosis (DVT) and die from pulmonary embolism (PE) even before the diagnosis is suspected.Â Therefore, the best approach is for every patient to be evaluated for primary prophylaxis since preventing DVT is essential to reducing morbidity and mortality associated with PE.

Prevention of fatal PE is not the only objective of thromboprophylaxis.Â Prevention of symptomatic DVT and PE are also important objectives since these outcomes are associated with considerable acute morbidity, substantial consumption of resources and long-term sequelae of clinical and economic significance.Â Failure to prevent VTE can result in delayed hospital discharge, readmission, an increased

long-term morbidity from post-thrombotic syndrome and recurrent thrombosis.Â A high number of patients develop residual venous abnormalities, and post-thrombotic syndrome that can result in chronic leg swelling, discomfort, dermatitis, and leg ulcers that can result in a reduced quality of life and adversely impact family and community economics.

EVIDENCE FOR UTILIZATION

Geerts WH, Bergqvist D, Pineo GF, Heit JA, Samama CM, Lassen MR, Colwell CW. Prevention of venous thromboembolism: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition). Chest2008 Jun;133(6 Suppl):381S-453S. [728 references] PubMed

Geerts WH, Pineo GF, Heit JA, Bergqvist D, Lassen MR, Colwell CW, Ray JG. Prevention of venous thromboembolism: the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. Chest2004 Sep;126(3 Suppl):338S-400S. [794 references] PubMed

COSTS

There is good evidence that appropriately used thromboprophylaxis has a desirable risk/benefit ratio, cost-effective and provides an opportunity to improve patient outcomes and reduce hospital costs.Â Uniform use of electronic alerts or local thromboprophylaxis guidelines are associated with improvements in both prophylaxis provision and patient outcomes.

EVIDENCE FOR COSTS

Geerts WH, Bergqvist D, Pineo GF, Heit JA, Samama CM, Lassen MR, Colwell CW. Prevention of venous thromboembolism: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition). Chest2008 Jun;133(6 Suppl):381S-453S. [728 references] PubMed

Geerts WH, Pineo GF, Heit JA, Bergqvist D, Lassen MR, Colwell CW, Ray JG. Prevention of venous thromboembolism: the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. Chest2004 Sep;126(3 Suppl):338S-400S. [794 references] PubMed

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Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Safety
Timeliness

Data Collection for the Measure

CASE FINDING

Users of care only

DESCRIPTION OF CASE FINDING

All patients, age 18 years and older (see the "Denominator Inclusions/Exclusions" field)

DENOMINATOR SAMPLING FRAME

Patients associated with provider

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions
All patients

Exclusions

- Patients less than 18 years of age
- Patients who have a length of stay (LOS) less than two days and greater than 120 days
- Patients with *Comfort Measures Only* documented
- Patients enrolled in clinical trials
- Patients who are direct admits to intensive care unit (ICU), or transferred to ICU the day of or the day after hospital admission with ICU LOS greater than or equal to one day
- Patients with *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Principal Diagnosis Code* of Mental Disorders or Stroke as defined in Appendix A, Table 7.01, 8.1 or 8.2 of the original measure documentation
- Patients with *ICD-9-CM Principal or Other Diagnosis Codes* of Obstetrics or VTE as defined in Appendix A, Table 7.02, 7.03 or 7.04 of the original measure documentation
- Patients with *ICD-9-CM Principal Procedure Code* of Surgical Care Improvement Project (SCIP) VTE selected surgeries as defined in Appendix A, Tables 5.17, 5.19, 5.20, 5.21, 5.22, 5.23, 5.24 of the original measure documentation

RELATIONSHIP OF DENOMINATOR TO NUMERATOR

All cases in the denominator are equally eligible to appear in the numerator

DENOMINATOR (INDEX) EVENT

Clinical Condition
Institutionalization
Therapeutic Intervention

DENOMINATOR TIME WINDOW

Time window brackets index event

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions
Patients who received venous thromboembolism (VTE) prophylaxis or have documentation why no VTE prophylaxis was given:

- The day of or the day after hospital admission
- The day of or the day after surgery end date for surgeries that start the day of or the day after hospital admission

Exclusions
None

MEASURE RESULTS UNDER CONTROL OF HEALTH CARE PROFESSIONALS, ORGANIZATIONS AND/OR POLICYMAKERS

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

NUMERATOR TIME WINDOW

Fixed time period

DATA SOURCE

Administrative data
Medical record

LEVEL OF DETERMINATION OF QUALITY

Individual Case

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

Better quality is associated with a higher score

ALLOWANCE FOR PATIENT FACTORS

Unspecified

STANDARD OF COMPARISON

External comparison at a point in time
External comparison of time trends
Internal time comparison

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

This measure has undergone a rigorous process of public comment and two phases (alpha and pilot [beta]) of testing that included reliability testing.Â The pilot specifications and algorithms were tested at over 40 hospitals (5,713 cases) for six months during 2007.

EVIDENCE FOR RELIABILITY/VALIDITY TESTING

Information about the Candidate Voluntary Consensus Standards for Hospital Care, additional priorities, 2007, detailed performance measure evaluation [unpublished].

Identifying Information

ORIGINAL TITLE

VTE-1:Â venous thromboembolism prophylaxis.

MEASURE COLLECTION

National Hospital Inpatient Quality Measures

MEASURE SET NAME

Venous Thromboembolism (VTE)

SUBMITTER

Centers for Medicare & Medicaid Services
Joint Commission, The

DEVELOPER

Centers for Medicare & Medicaid Services/The Joint Commission

FUNDING SOURCE(S)

All external funding for measure development has been received and used in full compliance with The Joint Commission's Corporate Sponsorship policies, which are available upon written request to The Joint Commission.

COMPOSITION OF THE GROUP THAT DEVELOPED THE MEASURE

Technical advisory panel of stakeholders. The list of participants is available at http://www.jointcommission.org/NR/rdonlyres/1A4DF024-92D7-42D0-B997-348193843D89/0/VTETechnicalAdvisoryPanel.pdf.

FINANCIAL DISCLOSURES/OTHER POTENTIAL CONFLICTS OF INTEREST

Expert panel members have made full disclosure of relevant financial and conflict of interest information in accordance with the Joint Commission's Conflict of Interest policies, copies of which are available upon written request to The Joint Commission.

ENDORSER

National Quality Forum

ADAPTATION

Measure was not adapted from another source.

RELEASE DATE

2009 Oct

MEASURE STATUS

This is the current release of the measure.

SOURCE(S)

Specifications manual for national hospital inpatient quality measures, version 3.0b. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2009 Oct. various p.

MEASURE AVAILABILITY

The individual measure, "VTE-1: Venous Thromboembolism Prophylaxis," is published in "Specifications Manual for National Hospital Inpatient Quality Measures." This document is available from The Joint Commission Web site. Information is also available from the Centers for Medicare & Medicaid Services (CMS) Web site. Check The Joint Commission Web site and CMS Web site regularly for the most recent version of the specifications manual and for the applicable dates of discharge.

NQMC STATUS

The Joint Commission submitted this NQMC measure summary to ECRI Institute on September 18, 2009. This NQMC summary was reviewed accordingly by ECRI Institute on November 10, 2009.

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